

Quiz 1
Coding Theory

20th January 2006

Time: 1 hours (12:30–1:30pm)

1. Write the addition [3][†] and multiplication [4] tables for \mathbf{Z}_6 .
2. Given ISBN 0 19 8538□3 0. Find the missing digit □.[3]
3. Let $f(x) = 1 + x^2 + x^3$. Show whether $f(x)$ is irreducible over \mathbf{Z}_2 . [4] Then find $\mathbf{Z}_2[x]/(f(x))$. [4] And then draw the addition [5] and multiplication [7] tables of $\mathbf{Z}_2[x]/(f(x))$.

[†] Numbers between square brackets are marks.